



## Chronic CAD/Stable Ischemic Heart Disease

### RELATIONSHIP BETWEEN INSULIN RESISTANCE AND CORONARY PLAQUE VULNERABILITY ASSESSED BY OPTICAL COHERENCE TOMOGRAPHY

Poster Contributions

Poster Sessions, Expo North

Saturday, March 09, 2013, 3:45 p.m.-4:30 p.m.

Session Title: What's New with Risk Stratification in SIHD: Biomarkers, Genes and ECG

Abstract Category: 10. Chronic CAD/Stable Ischemic Heart Disease: Clinical

Presentation Number: 1154-69

Authors: *Tomokazu Iguchi, Takao Hasegawa, Kenichiro Otsuka, Kenji Matsumoto, Shoichi Ehara, Akihisa Hanatani, Kenei Shimada, Minoru Yoshiyama, Osaka City University, Osaka, Japan*

**Background:** Relationship between insulin resistance (IR) and coronary plaque instability has not been well known. We sought to assess the association between IR and coronary plaque characteristics identified by optical coherence tomography (OCT).

**Methods:** This study enrolled consecutive 155 patients undergoing percutaneous coronary intervention. In the culprit lesions, we assessed lipid-rich plaque length and arc, fibrous cap thickness, frequency of thin-cap fibroatheroma (TCFA), thrombus, ruptured plaque, macrophage, and microvessel identified by OCT. IR was defined as the homeostasis model assessment of insulin resistance (HOMA-IR).

**Results:** Patients in higher IR group (HOMA-IR >2.50, n = 52) had more frequently lipid-rich plaque than those in lower IR group (HOMA-IR ≤2.50, n = 103) (83% vs 59%, p = 0.004). Compared to lower IR group, higher IR group had significantly more frequently presence of TCFA (27% vs 50%, p = 0.005). In addition, fibrous cap thickness in higher IR group was significantly thinner than those in lower IR group (71.3 ± 29.2 μm vs 90.1 ± 39.6 μm, p = 0.008). On multivariate analysis, acute coronary syndrome (odds ratio; 17.98, 95% confidential interval [CI]; 7.12-52.02, p <0.0001) and HOMA-IR >2.50 (odds ratio; 3.57, 95% CI; 1.42-9.55, p = 0.007) were independent predictors for presence of TCFA (Table).

**Conclusions:** This study suggests that IR might be a contributing factor for the presence of vulnerable coronary plaque.

Predictor for presence of TCFA

Variable	Odds Ratio	95% Confidence Interval	p-value
Acute coronary syndrome	17.98	7.12-52.02	<0.0001
Diabetes mellitus	2.55	0.76-9.10	0.13
HOMA-IR (>2.50)	3.57	1.42-9.55	0.007
LDL-cholesterol	1.01	0.99-1.03	0.38
Statin use	0.62	0.21-1.77	0.37
Triglyceride	1.01	0.99-1.01	0.20
High sensitive C-reactive protein	0.58	0.02-19.67	0.75